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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/921,633 08/27/97 RALEIGH

G 018543-00010

LM02/0201

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EXAMINER

FAN, C

ART UNIT

PAPER NUMBER

2734

DATE MAILED:

02/01/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/921,633

Applicant(s)
Gregory Raleigh

Examiner
Chieh M. Fan

Group Art Unit
2734



☒ Responsive to communication(s) filed on Nov 12, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 266-302 and 307-311 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 266, 267, 270-282, 284, 285, 288, 297-301, and 307-311 is/are rejected.

☒ Claim(s) 268, 269, 283, 286, 287, 289-296, and 302 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7, 8, 9, 10, 12, 15

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

1. The petition (Paper #11) requesting the deletion of inventors (Vincent K. Jones and Michael Pollack) in this nonprovisional application under 37 CFR 1.48(b) is deficient because:

The petition lacks the statement required under 37 CFR 1.48 (b)(1).

It lacks the required fee under 37 CFR 1.17(I).

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Objections

3. Claims 284-302 are objected to because of the following informalities:

it appears that a verb is missing between "that" and "a" in line 3 of claim 284.

Appropriate correction is required.

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Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 270-277 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear whether the word “receiving” after “wherein” in claims 270 and 271 is referred to “the method of receiving” or “the step of receiving information”.

6. Claims 307-311 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the term “output bit” in the last line of claim 307 finds no antecedent basis in the claim. It appears that the term should be “output bin”.

In addition, the term “said burst of frequency domain training symbols” in lines 5-6 of claim 311 also finds no antecedent basis in the claim.

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Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. Claims 266, 267, 270, 278, 280-282, 284, 285, 288, 297 and 299-301 are rejected under 35 U.S.C. 102(e) as being anticipated by Wishart (US Patent 5,510,799, provided by the Applicant in IDS, Paper #8).

Regarding to claims 266, 267, 270, 278, 284, 285, 288, and 297, Wishart discloses a method for receiving via a plurality of outputs from a channel comprising:

providing a time domain substantially orthogonalizing procedure (see 3, FFT processor in Fig. 2) to divide said channel into output bins;

providing one or more spatial directions for communication defined by corresponding weightings (see Wi1, Wi2, Wi3 in Fig. 2) among said channel outputs wherein each output bin has at least one associated spatial direction; and

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receiving information via subchannels of said channel by employing at least two independent parallel applications of said time domain substantially orthogonalizing procedure, each subchannel defined by a combination of output bin and spatial direction (see Figs 1 and 2, also see claim 1).

Regarding to claims 280-282 and 299-301, the method of Wishart further comprising an N-element phased array antenna. An N-element phased array antenna may be an antenna with multiple polarizations (co-located) or a plurality of antennas located at different locations.

9. Claims 266, 278, 279, 284, 297, 298, 307 and 308 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al. (US Patent 5,479,447).

Regarding to claims 266, 284 and 307-308, Chow et al. teach a discrete multitone (DMT) receiver (see Fig. 5b) that receives information via a channel with a plurality of complex subchannels (col. 2, line 15). The receiver comprises a processing element (see 56 in Fig. 5b) that performs a time domain substantially orthogonalizing procedure, a decoding system (see 58 in Fig. 5b), and a processor employing weighting (see 58 in Fig 5b, an equalizer) among the channel outputs.

Regarding to claims 278, 279, 297 and 298, the processing element (see 56 in Fig. 5b) performing the time domain substantially orthogonalizing procedure is an FFT operator. The FFT is preceded by removal of a cyclic prefix (54 in Fig. 5b).

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Allowable Subject Matter

10. Claims 268, 269, 283, 286, 287, 289, 290-296 and 302 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 286, 287, 289, 290-296, 298 and 302 also need to overcome the claim objection stated above.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liu et al. (US Patent 5,905,721) disclose methods for channel estimation in a multichannel communication system.

Carney et al. (US Patent 5,537,435) teach a multichannel wireless communication receiver contains an FFT-based channelizer.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M. Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If attempts to

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reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached on (703) 305-4714.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

Or:

(703) 308-6743 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Chieh M. Fan
January 30, 2000 *cf*


STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
GROUP 2700